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# Environmental Neurotoxicology--Assessment of Nervous System and Behavioral Dysfunction Held at Duesseldorf, Germany, F.R. on March 29-31, 1982 and World Congress of IBRO (1st) on 'The Brain in Health and Disease' Held at Lausanne, Switzerland: Introduction

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This issue of Neurobehavioral Toxicology and Teratology contains a collection of papers presented at two conferences which were sponsored in part by the Neurotoxicology Division, U.S.E.P.A. The first conference, "Environmental Neurotoxicology - Assessment of Nervous System and Behavioral Dysfunction" was held at the University of Dusseldorf, Dusseldorf, F.R.G. on March 29-31, 1982 as a satellite symposium to the 1st World Congress of IBRO on "The Brain in Health and Disease," held in Lausanne.

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NEUROTOXICOLOGY OF PESTICIDES

# Introduction

This issue of *Neurobehavioral Toxicology and Teratology* contains a collection of papers presented at two conferences which were sponsored in part by the Neurotoxicology Division, U.S. Environmental Protection Agency. The first conference, "Environmental Neurotoxicology—Assessment of Nervous System and Behavioral Dysfunction" was held at the University of Dusseldorf, Dusseldorf, F.R.G. on March 29–31, 1982, as a satellite symposium to the 1st World Congress of IBRO on "The Brain in Health and Disease," held in Lausanne. The Dusseldorf conference was organized by Dr. Zoltan Annau, Johns Hopkins University, Dr. Herbert Wiegand, University of Dusseldorf, and Dr. Gerhard Winneke, University of Dusseldorf. Additional support for this meeting came from Deutsche Forschungsgemeinschaft, Land Nordrhein Westfalen, Henkel KGaA, and the U.S. National Institute of Environmental Health Sciences. The second conference, "Neurotoxicology of Pesticides" was held at the Marriott Hotel, Raleigh, NC, on June 25–26, 1982, and was organized by Dr. Zoltan Annau, Johns Hopkins University, and Dr. Robert Dyer, U.S.E.P.A. These conferences continue a series of EPA NTD-sponsored meetings.

In many ways the part of toxicology that is specifically concerned with the nervous sytem is a relatively young discipline. This is especially true if neurotoxicology is defined in the broad sense that now seems to be necessary, including the evaluation of behavioral, neurophysiological, neurochemical and neuropathological endpoints. Perhaps as a consequence of its youth, many neurotoxicologists have been trained in a particular subdiscipline of neuroscience which they use as their methodological base. Not surprisingly, early meetings which brought together workers in the area of neurotoxicology often focused on the methods. There is definitely value in a rigorous discussion of methods, but it is equally important to find a forum in which the toxicity of selected compounds or groups of compounds can be discussed in a way which places different methodological approaches into perspective, and not into conflict. Therefore a general strategy of the NTD-sponsored conferences has been to invite speakers capable of synthesizing broad areas of research to provide a coherent picture of the neurotoxicity of particular classes of chemicals. It was with this general attitude that the conference on the Neurotoxicity of Pesticides was organized. However topic-oriented meetings are only of value if the sensitivity and cost-effectiveness of the various methods glossed over in the presentations are appreciated at some baseline level by the audience. Interspersing topic-oriented meetings with an occasional methods-oriented meeting is a solution to maintaining the baseline if the results of the two sets of meetings are made known to the same audience. NTD's motive for providing partial funding for the Dusseldorf meeting was to help maintain the baseline. The European location was chosen to assist in attracting a truly international representation.

The primary goals of the Dusseldorf meeting were articulated by Dr. Winneke to be:

1) To assess methods useful for neurotoxicity screening.

2) To assess methods useful for determining mechanisms of neurotoxicity.

3) To wrestle with the issue of extrapolation from laboratory studies to risk assessment in the human case.

There are two primary reasons why the 1982 conference focused on pesticides. First, the EPA Neurotoxicology Division has spent considerable effort in the last few years investigating the neurotoxicity of certain pesticides. Now seemed a good time to take stock and see where WE are, (and where everybody else is) so that sensible judgements could be made about the needs for future research.

Second, by publishing the presented papers in this issue of *Neurobehavioral Toxicology and Teratology*, awareness of the neurotoxicity of pesticides should be broadened among the scientific and regulatory communities. There has been a tendency to assume that the only pesticides which produce neurotoxicity are organophosphates, and the only kind of neurotoxicity they produce is delayed peripheral axonopathy. The papers from this conference make it clear that there are other pesticides and other effects upon the nervous system. In many cases the long term impact of repeated exposure to pesticides is unknown, but not necessarily unimportant. Just as often the impact of pesticide exposure on "sensitive" populations such as the very young is unknown. The organizers and participants of these meetings hope that the following papers stimulate interest sufficient to answer some of the many questions which the papers raise.

Finally, it is useful to keep in mind a point which was made implicitly several times at the Dusseldorf meeting: that some methods are best suited for detection and characterization of neurotoxicity, while others are better suited to understanding mechanisms of neurotoxicity. Some of the papers presented at the Pesticide meeting focused on understanding mechanisms, some focused on detection and characterization and some described both. The editors hope this collection of papers serves as a stimulus to promote further study of the neurotoxicology of pesticides as well as careful consideration of the relative value of various neurotoxicological methods.

Robert S. Dyer

*Neurophysiology Branch*
*Neurotoxicology Division*
*U.S. Environmental Protection Agency*
*Research Triangle Park, NC 27711*

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